CLAIMS

What is claimed is:

1. A display system comprising:

a display having an image plane;

a lens focusing on the image plane of the display and having a depth of field;

a first polarizer interposed between the display and the lens and spaced from the display such that the polarizer is outside of the depth of field; and

a second polarizer located on the other side of the display than the lens.

2. A display system of claim 1 wherein the display is an active matrix liquid crystal display having an active area of less than 100 millimeter^2 and having a resolution of at least 70,000 pixels.

3. A display system of claim 1 wherein the display is an active matrix liquid crystal display having an active area of less than 45 millimeters^2 and having a resolution of 300,000 pixels.

4. A display system of claim 1 further comprising a light source for illuminating the display.

5. A display system of claim 4 wherein the light source is a light emitting diode (LED).

6. A display system of claim 4 wherein the light source includes at least three light emitting diodes (LEDs), a red LED, a blue LED and a green LED.

7. A display system of claim 1 wherein the first polarizer is spaced at least 1.0 millimeters from the image plane.

8. A display system of claim 1 wherein the first polarizer is within the range of 1.2 millimeters and 18 millimeters from the image plane.

9 A display system of claim 8 further comprising a light source for illuminating the display and the second polarizer is spaced between the display and the light source and is between 1.0 millimeters and 3.2 millimeters from the image plane.

10. A display system of claim 1 further comprising a housing wherein the display is mounted within the housing.

11. A display module of claim 10 wherein the housing comprises a first housing element and a second housing element, the first polarizer held within the first housing element and the second polarizer held within the second housing element.

12. A display system of claim 11 wherein the first distance between the first polarizer mounted within the first housing element and the first surface of the display is approximately 0.8 millimeter.

13. A display system of claim 1 further comprising a backlight.

14. A display system of claim 13 wherein the backlight comprises at least one light emitting diode (LED), a first diffuser and a second diffuser.

15. A display system of claim 14 further comprising a first distance between the light source and the second diffuser of between 3.6 and 4.0 millimeters.

16. A display system of claim 15 wherein the first distance between the light source and the second diffuser is approximately 3.8 millimeter.

17. A display system of claim 15 further comprising a second distance between the first diffuser and the second diffuser of between 2.1 and 2.5 millimeters.

18. A display system of claim 17 wherein the second distance between the first diffuser and the second diffuser is approximately 2.3 millimeter.

19. A display system comprising:

a display having an image plane;

a light source for illuminating the display

a first polarizer spaced from the image plane by a distance greater than the depth of focus such that first polarizer defects are not visible; and

a second polarizer located on the other side of the display than the lens.

20. A display system of claim 19 wherein the first polarizer defects have a size of less than 15 micrometers.

21. A display system of claim 19 wherein the second polarizer is spaced from the image plane by a distance greater than the depth of focus such that second polarizer defects are not visible.

22. A display system of claim 21 wherein the first and second polarizer defects have a size of less 15 micrometers.

23. A display system of claim 21 wherein the first polarizer and second polarizer are each spaced by at least 1.2 millimeters from the image plane.

24. A display module comprising:

a microdisplay having a liquid crystal display having an active area of less than 100 millimeters^2 and at least 70,000 pixels, and a first surface and a second surface;

a first polarizer located at a first distance from the first surface of the display, the first distance removing the visibility of first polarizer defects; and

a second polarizer located on the second surface of the display.

25. A display module of claim 24 wherein the first distance is within the range of 0.5 millimeter and 17 millimeter.

26. A display module of claim 24 wherein the first polarizer defects are located within the first polarizer.

27. A display module of claim 26 wherein the first polarizer defects have a size less than 15 micrometers.

28. A display module of claim 24 wherein the first polarizer defects are located between the first polarizer and the first surface.

29. A he display module of claim 28 wherein the first polarizer defects have a size less than 20 micrometers.

30. A display module of claim 24 further comprising a housing wherein the display is mounted within the housing.

31. A display module of claim 30 wherein the housing comprises a first housing element and a second housing element, the first polarizer held within the first housing element and the display held within the second housing element.

32. A display module of claim 31 wherein the first distance between the first polarizer mounted within the first housing element and the first surface of the display is approximately 0.8 millimeter.

33. A display module of claim 24 further comprising at least one lens.

34. A display module of claim 33 wherein the first polarizer is located between the display and the at least one lens.

35. A display module of claim 24 wherein the display comprises a microdisplay.

36. A display module of claim 24 further comprising a backlight.

37. A display module of claim 36 wherein the backlight comprises a light source, a first diffuser and a second diffuser.

38. A display module of claim 37 further comprising a first distance between the light source and the second diffuser.

39. A display module of claim 38 wherein the first distance between the light source and the second diffuser is approximately 3.8millimeter.

40. A display module of claim 37 further comprising a second distance between the first diffuser and the second diffuser.

41. A display module of claim 40 wherein the second distance between the first diffuser and the second diffuser is approximately 2.3millimeter.

42. A display system comprising:

an active matrix liquid crystal display having a plurality of pixel electrodes, a counterelectrode, and interposed layer of liquid crystal material defining an image plane;

the display having a pair of glass plate enclosing the pixel electrodes, the liquid crystal material and the counterelectrode;

a lens focusing on the image plane of the display and having a depth of field;

a first polarizer spaced from both the first glass plate and the image plane such that the polarizer is outside of the depth of field;

a second polarizer spaced from at least the image plane.

43. A display system of claim 42 wherein the first polarizer is spaced from the first glass plate within the range of 0.5 millimeters and 17 millimeters.

44. A display module of claim 43 wherein the second polarizer is spaced from both the second glass plate and the image plane and spaced from the second glass plate within the range of 0.5 millimeters and 2.5 millimeters.

45. A display system of claim 42 wherein the first polarizer has defects having a size of less than 15 micrometers and the polarizer is spaced from the image plane such a distance such that the defects are not visible to a human eye.

46. A display system of claim 45 wherein the second polarizer has defects having a size of less than 15 micrometers and the polarizer is spaced from the image plane such a distance such that the defects are not visible to a human eye.

47. A display system of claim 42 further comprising a housing wherein the display is mounted within the housing.

48. A display system of claim 47 wherein the housing comprises a first housing element and a second housing element, the first polarizer held within the first housing element and the second polarizer held within the second housing element.

49. A display system of claim 48 wherein the first distance between the first polarizer mounted within the first housing element and the first surface of the display is approximately 0.8 millimeter.

50. A display system of claim 42 further comprising a backlight.

51. A display system of claim 50 wherein the backlight comprises a light source, a first diffuser and a second diffuser.

52. A display system of claim 51 further comprising a first distance between the light source and the second diffuser.

53. A display system of claim 52 wherein the first distance between the light source and the second diffuser is approximately 3.8millimeter.

54. A display system of claim 51 further comprising a second distance between the first diffuser and the second diffuser.

55. A display system of claim 54 wherein the second distance between the first diffuser and the second diffuser is approximately 2.3 millimeter.

56. A backlight for a display comprising

a light source;

a first diffuser; and

a second diffuser located at first distance from the light source and located a second distance from the first diffuser.

57. A backlight of claim 56 wherein the first distance between the second diffuser and the light source is approximately 3.8 millimeter.

58. A backlight of claim 56 wherein the second distance between the second diffuser and the first diffuser is approximately 2.3 millimeter.

59. A backlight of claim 56 further comprising a housing, the housing positioning the second diffuser at a first distance from the light source and positioning the second diffuser at a second distance from the second diffuser.

60. A method for assembling a display module comprising:

providing a first polarizer, a second polarizer and a display;

locating the first polarizer at a first distance from a first surface of the display; and

locating the second polarizer at a second distance from a second surface of the display.

61. The method of claim 60 further comprising:

providing at least one lens; and

positioning the lens in relation to the first polarizer such that the first polarizer is located between the lens and the display.

62. The method of claim 60 further comprising:

providing a backlight having a light source, a first diffuser and a second diffuser;

positioning the backlight adjacent to the display such that the backlight provides light to the display.

63. A method for assembling a display module comprising:

providing a first polarizer, a second polarizer and a display;

locating the first polarizer at a first distance from an image plane of the display; and

locating the second polarizer at a second distance from an image plane of the display.

64. The method of claim 63 further comprising:

providing at least one lens; and

positioning the lens in relation to the first polarizer such that the first polarizer is located between the lens and the display.

65. The method of claim 63 further comprising:

providing a backlight having a light source, a first diffuser and a second diffuser;

positioning the backlight adjacent to the display such that the backlight provides light to the display.

66. A method for assembling a backlight for a display module comprising:

providing a light source, a first diffuser and a second diffuser;

positioning the second diffuser at a first distance from the light source; and

positioning the first diffuser at a second distance from the second diffuser.